REMARKS/ARGUMENTS

Reconsideration of the above-identified application is requested in view of the remarks that follow.

In the July 23, 2004, Office Action, the Examiner rejected claim 5 under 35 U.S.C. 102(b) as being anticipated by the Metzger et al. '028 patent. Claim 6 was rejected under 35 U.S.C. 103(a) as being unpatentable over the Metzger et al. reference and further in view of the Miura et al. '067 patent. Claim 7 was rejected under 35 U.S.C. 103(a) as being unpatentable over the Metzger/Miura reference combination and further in view of the Sato '098 patent.

As indicated above, rejected claims 5-7 have been cancelled. New claims 8-12 have been added. For the reasons set forth below, it is believed that new claims 8-12 patentably distinguish over the references cited by the Examiner, whether considered individually or in combination.

Applicant's new independent claim 8 recites a method of forming a bipolar transistor structure in a shallow trench isolation (STI) active device region formed in a silicon substrate. In accordance with the claim 8 method, an n-type collector region is formed in the STI active device region. A lower layer of p-doped epitaxial silicon-germanium material is then formed on the n-type collector region. An upper layer of p-doped epitaxial silicon-germanium material is formed on the lower layer of silicon-germanium material. As recited in claim 8, the dopant concentration of the upper silicon-germanium layer is about minus 10X or less than the dopant concentration of the lower silicon-germanium layer. To complete the bipolar transistor structure, the claim 8 method further recites forming an-n-doped polysilicon emitter region on the upper silicon-germanium layer.

As discussed beginning at page 4, line 5 of the application, the layered base structure recited in claim 8, with its associated difference in doping concentration, causes the emitter-base space-charge region of the device to spread into the low-doped base spacer region, thereby increasing its thickness. This results in a desirable decrease of junction capacitance and tunneling. As further discussed therein, a bipolar transistor structure formed in accordance with the invention results in a drastic reduction of the emitter-base capacitance.

Upon consideration of the references cited by the Examiner, and particularly the Metzger et al. reference, Applicant is of the good faith belief that none of the references, whether considered individually or in combination, either teaches or suggests a dual layer silicon-germanium base region in a bipolar transistor structure with the dopant concentration profile of the dual-layer base region as recited in claim 8.

For the reasons set forth above, Applicant submits that all claims currently pending in this application patentably distinguish over the prior art. Therefore, it is requested that this application be pass to allowance.

Respectfully submitted,

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